



Global Village Newsletter

Published by Dark Star Systems Ltd.

SUMMER/AUTUMN 1986

Welcome to issue number 2 of our Global Village customer newsletter. Inside, you'll find news of exciting new products from Dark Star Systems and others that are helping to keep the Apple II right at the forefront of the continuing personal computer revolution.

Those of you who haven't yet been introduced to our product range will find answers to all your questions inside these pages as well.

For owners of Dark Star software products, there are also full details of the new features to be found in the latest versions of all our programs, and instructions on how to upgrade. In addition, we have been sent a number of useful Snapshot tips and applications from customers worldwide that we're happy to pass on to everyone. If you are using any of our products to achieve something noteworthy with your Apple, why not drop us a line and give *your* idea to the world?

Again, we have done our best to keep our customer records straight. However, if we didn't get your name and address right this time, you can ensure that we know all about it simply by filling in the Blunder Box on the Business Reply Coupon (postage free in the UK) on the back page. Use the Blunder Box too if you obtained this newsletter with a magazine (or by some other means) but wish to receive it by mail in future.

Send all other correspondence to:

**Customer Services Dept.
Dark Star Systems Ltd.
78 Robin Hood Way
Greenford**

**Middlesex UB6 7QW
England**

Electronic Mailboxes:

The Source: BCJ456

Compuserve: 73317,3015

MicroLink: MAG20297

Dark Star Goes Down Under

In the Northern Hemisphere, Australia is generally better known for sun, cricket, and Fosters lager than for electronics innovation. We hope to change all that soon through our link with Cybernetics Research of Melbourne, with whom we have just signed a contract to manufacture and distribute Dark Star products in Australasia and the Far East.

As part of the deal, we hope to bring some innovative new Apple II products from the outback to Europe. Of particular interest is a great co-processor card with the Apple-compatible 8 and 16 bit 65C816 processor on-board,

complete with 16 bit versions of Basic and Pascal. This powerful, lightning-fast board has the potential to make your Apple take off!

More details in the next issue of the Global Village Newsletter. Meanwhile, Dark Star product users in Australia and New Zealand should address all enquiries to:

**Cybernetics Research Ltd.
576 Malvern Road,
Pahran, Victoria 3181
Australia**

**Telephone: (03) 529 4844
Telex: 39741 ASIPAC AA**

\$3.47

A Word on Price Labelling

One or two of our UK customers have asked why Dark Star Systems (in common with many other UK computer accessory companies) does not include VAT in its stated prices.

Our reason for leaving you to work out the VAT is simply this: We don't know about other companies, but a growing proportion of our business (over 45% at the last count) is done overseas. Orders from outside the United Kingdom are not subject to VAT, and we don't want to inconvenience people with complicated

calculations. (It's much easier for us in the UK to work out VAT on basic prices than it would be for our overseas customers to work out the tax proportion of prices that included VAT.)

Legal Stuff

Virtually every product name included in this newsletter is somebody's trademark. Since there are far too many of them to acknowledge, just assume that every word printed here is the trademark of somebody or other.

CONTENTS

2.70

Dark Star product details.....	Page 2
Update news.....	Page 3
Apple II Memory Expansion Cards.....	Page 9
Other products.....	Page 11
Hints and tips.....	Page 13
Price checklist and ordering info.....	Page 15

darkStar
SYSTEMS

GOOD NEWS FOR APPLE II OWNERS

NEW LOW PRICES ON PAGE 15

Why Apple users need the Snapshot system

Many computer users were originally attracted to the Apple II by the sheer number and diversity of the programs written to work with it.

Unfortunately, because so many programs for the Apple are copy-protected and/or use outdated — or customized — disk operating systems, many users cannot even begin to exploit its full potential.

Copy-protected programs restrict your ability to make backups, make screen dumps, and tailor software to your own requirements. Protection also means that many innovative utilities, such as the

where I consider that it has really more than paid for itself already.

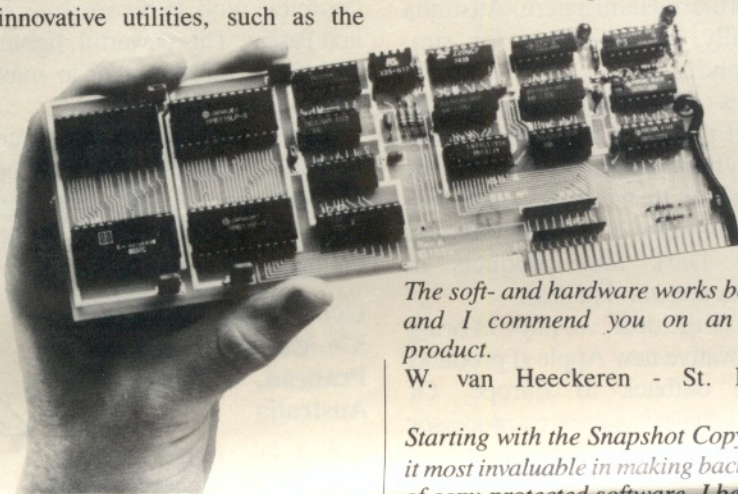
Full marks, Dark Star... I shall be singing your praises!

R. Williams - Harpenden, England

Thanks to Snapshot, I can put the originals in the archives, and use the copy to do what has to be done.

I'm glad I decided to invest in the Dark Star Systems card. (Just wish you folks were on this side of the pond!)

P. K. Pagel - Connecticut, USA



The soft- and hardware works beautifully, and I commend you on an excellent product.

W. van Heeckeren - St. Leonards, Australia

Starting with the Snapshot Copykit, I find it most invaluable in making backup copies of copy-protected software. I believe that, having purchased a piece of expensive software, I have the right to make backup copies for my own use. An additional advantage of having a Copykit backup is that one can avoid unnecessary pre-amble and have a version (of a program) that goes straight to the useful part.

The Snapshot Shuttle is very useful for switching from one program to another quickly. When working on the graphics for my lectures, for example, I am able to use two different graphics systems virtually simultaneously in this way, without having to re-boot to go from one to the other.

The Snapshot Printinterrupt is, for my purposes, the most useful package of the three. It makes it very easy to interrupt any program, dump the display onto a dot-matrix printer and then resume running the program. I produce lecture notes that way, as well as pictures for research papers, reports, or even transparencies (by using our Xerox copier to transfer the picture from paper to an acetate sheet). It is wonderful to be able to position the picture on the sheet correctly, to crop or invert it if necessary and to select the density of the print, to name a few of the many features available.

In addition to the usefulness of the system itself, I find you and your colleagues at Dark Star most approachable and helpful indeed....

Dr. L. Svarovsky - Deputy Chairman
University of Bradford, England

"program manager" for Cirtech's one Megabyte "Flipper" card, just won't work with most commercial programs.

In order to give Apple users a way to get the most from their hardware and software investment, Dark Star's engineers set out to design a system that could by-pass any operating system and all copy-protection. The result of their endeavours is the Snapshot card, a device with a remote trigger switch that can be installed in any vacant slot of the Apple II. When Snapshot's trigger is pressed, it causes a hardware interrupt that lets you suspend any running program, manipulate it, and then resume running it from the point of interruption.

The manipulation part is handled by a family of Snapshot software packages (Shuttle, Printinterrupt, UniCopy 3.5, etc.) that can be loaded into the card and give you complete control over a variety of the Apple's essential functions. Here are some comments from customers on those Snapshot software packages:

I think that Snapshot is the most useful card I've ever found for my Apple.

Massimo Gentilini - Bologna, Italy

Snapshot has proven to be very good value for money for my business, to the point

The Snapshot system reviewed in Australian Apple Review - January 1986

In summary, we have always found this one of the most useful cards on the Apple II and there is no doubt the programs supporting the card get more useful and sophisticated by the year.

We have found that most serious enthusiasts have one and would not be without it.

Even Great Products Need Great Backup

Certainly, a lot of Apple users find the Snapshot system very useful. But as one of our above-quoted customers suggests, the usefulness of a system is only part of the story. Buying computer products can sometimes be a risky business. Even the best-designed hardware and software manufactured to the highest possible specifications can present the unwary with unforeseen difficulties. We want you to feel confident about ordering products from us. That's why we at Dark Star Systems back everything we sell with an unbeatable service package that includes a 12 months no-quibble guarantee and free-of-charge technical support.

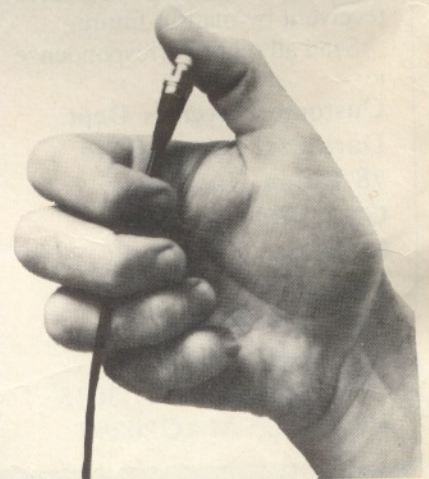
There are no hidden costs with the products we sell; everything you need to get up and running is included. And, in the United Kingdom, there is no charge for postage and packaging. If your configuration is unusual, we'll bend over backwards to support it. (Our engineers will sometimes spend weeks rewriting one of our programs to work with obscure equipment unavailable in the UK.)

We're happy to say that we've received many acknowledgements of our efforts to provide good service. Here are some extracts from our correspondence on the subject:

We were very pleased with the speed and quality of your technical back up. This service is important to us and we will have pleasure in recommending Dark Star whenever possible.

A. D. McNair - Chief MLSO
Department of Laboratory Medicine,
Ruchill Hospital, Glasgow, Scotland

(Continued on page 3, column 1)



(Continued from page 2)

I would like to say how impressed I am with the technical back-up you provide for your products.

M. A. Ray - Bromley, England

I feel the service from Dark Star Systems is excellent.

C. Barden - Eastbourne, England

Many thanks for your most helpful attitude and kind assistance, it's nice to find a dealer who cares about customer support.

Mike Jones - Rayleigh, England

We would like to congratulate you upon your efficient way of doing business, which we will certainly bring to the attention of other organisations in this part of the world.

A. McDermott - Principal
Moreau College, Dunedin, New Zealand

I am so grateful that you have gone to so much trouble to assist me with my Print Shop problem. I envy your obvious thorough knowledge of the subject.

Jim Goody - Southend-on-Sea, England

.... it's a pity other companies I have dealt with in the past didn't give the same excellent service and back up that you and Dark Star Systems have given me and I have no hesitation in recommending your products to other Apple owners.

L. Fava - Northern Territories, Australia

I would like you to know that I was very impressed by your company's efficiency. I am just not used to computer peripherals, programs, etc. that I have ordered arriving almost by return of post!

R. Williams - Harpenden, England

The Snapshot Shell. Now Applesoft programmers can write Snapshot software too!

All the Snapshot software packages Dark Star publishes have a common element which we call the "Shell". This is the Snapshot card's "house keeper"; a sort of memory manager and mini operating system which allows Snapshot software to work with an interrupted program.

Last year, we decided to make The Snapshot Shell available to software developers and other programmers so they could store their own machine-code routines in the Snapshot card and make use of its interrupt-and-resume facilities. Now, if you can program in Applesoft Basic, you too can write Snapshot software.

The Shell is complete enough, and powerful enough, to make the techies among us salivate.

Michael Fischer -
Apple II Computing, June 1986

Using the Shell, you can interrupt whatever your computer is doing and take control of it with a Snapshot package written by yourself. It might be a super debugger, a graphics editor, a comms package, or a machine control program; the only restrictions are space (just over 4K available), and your imagination. When you have finished with your Snapshot program, you can return control of your computer to the interrupted software without it ever knowing it was disturbed.

The Shell comes with menu-building routines which give you the ability to create software packages just like ours. If you wish to commercially exploit your Snapshot software, you may do so without any licence from — or payment to — Dark Star Systems Ltd. Snapshot cards can be purchased for marketing with your work by arrangement.

The Snapshot Shell.....£20.00

Now's the time for Snapshot and Snapshot Two owners to upgrade to the version //e Snapshot system.

If you are the owner of one of the original Snapshot or Snapshot Two cards designed for use with the Apple II+, you can still take advantage of our hardware upgrade offer. The version //e system is compatible with the Apple II+ and //e, and upgrading means you can join the thousands of Apple users worldwide who benefit from the latest Snapshot multitasking, printing, backup and custom-software enhancements — at a considerable saving.

Simply send us your original Snapshot disk and payment of £100.00 (plus VAT, or airmail postage and packaging as appropriate) and we will immediately despatch your Snapshot version //e card complete with Copykit, Shuttle, Printinterrupt and Shell software packages.

Snapshot One/Two Upgrade.....£100.00

Snapshot software package updates — what the latest versions have to offer:

- Support for all the popular Apple II+ 80-column cards (Videx, Sup'R'Term, Vision 80, etc.)
- Support for the enhanced Apple //e with MouseText ROM, etc.
- Support for double hi-res graphics programs
- Support for Apple Mouse programs (MouseCalc, MouseDesk, MousePaint, etc.)
- Faster operating system - DS-DOS with TLIST command for reading text files (like CP/M TYPE command)
- Shuttle support for all the new ramcards and up to four 128K programs
- Printinterrupt option for viewing and printing MousePaint pictures
- More sophisticated Copykit "self-locating loader"
- Support for Applesoft Basic programs in the Shell

Price £15.00 each for the Copykit, Shuttle, Printinterrupt and Shell; £50.00 for combination pack containing all four packages. (Original disk(s) must accompany order).

Dark Star Supports Apple's New UniDisk 3.5

The UniDisk 3.5 gives your Apple more storage space with greater speed and reliability too. It uses robust double-sided 800K diskettes that have over five times the storage capacity of your highly fragile 5.25" floppies, and their data are saved and loaded up to 50 times faster. In short, Apple's new drive resembles its predecessor about as much as a Jumbo Jet resembles a bi-plane.

What about DOS 3.3?

On the downside for faithful Apple users is the fact that Apple is abandoning DOS 3.3 and supporting ProDOS and Pascal 1.3 only on the UniDisk 3.5. However, as is usual when Apple creates a gap in the market, there's always someone around to fill it. A couple of US companies (MicroSPARC and Nordic Software), and now Cirtech have been quick to jump into the breach with enabling software for users of DOS 3.3 and other operating systems. No doubt there'll be more programs like these coming along soon, but here are potted reviews of the three that are available at the time of our going to press:

UniDOS 3.3 from MicroSPARC (publishers of the indispensable Nibble Magazine) lets you format 3.5" disks that automatically boot DOS 3.3. It lets you have two 400K volumes per disk and will support two daisy-chained UniDisks addressable as drives 1 - 4. Price: \$49.95

Profix 2.1 is similar to UniDOS 3.3 but has some extra advantages. Profix lets you use DOS 3.3 or Beagle Brothers Pronto DOS on any mass storage device having a ProDOS interface.

Cirtech's Uni-Mate

Now, Cirtech has entered the fray with its own UniDisk 3.5 product — Uni-Mate. Like its American cousins, Uni-mate is designed to enable users to run unprotected programs on the UniDisk 3.5 under operating systems that Apple hasn't seen fit to support.

While Cirtech's program differs from the rest is, as usual, best measured in terms of performance against cost. The following list of its features shows quite clearly enough why we are offering Uni-Mate to our customers rather than either of the others:

- creates two 400K DOS 3.3 volumes accessed as drives 1 and 2 on the first UniDisk 3.5, as drives 3 and 4 on a second
- will accept as many UniDisk controller cards as you have room for under DOS 3.3
- supports up to two UniDisk 3.5 drives under Pascal 1.1 or 1.2, with 797K file-storage capacity on each diskette
- supports up to two UniDisk 3.5 drives under CP/M 2.20B or 2.23 with 784K file storage capacity on each diskette

Cirtech Uni-Mate.....£25.00

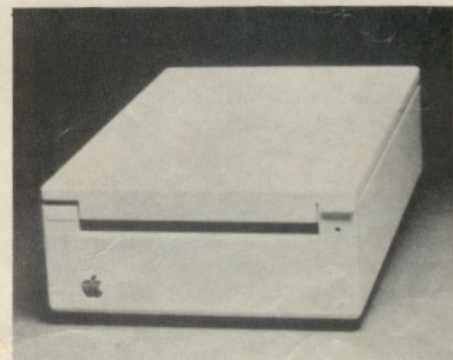
Introducing the Snapshot UniCopy 3.5

For those of you wanting to transfer copy-protected programs from those old disaster-prone 5.25" floppies to relatively secure 3.5" disks and take full advantage of all that extra storage capacity too, we're offering a major improvement over those software utilities: Snapshot UniCopy 3.5 — a Copykit for the UniDisk 3.5.

UniCopy 3.5 uses the interrupt-and-resume power of the Snapshot card to let you load any memory-resident program and then save it to a UniDisk 3.5 diskette in just a few seconds. You can have up to twelve programs — using twelve different operating systems if necessary — on the same diskette. Switching programs can be accomplished with the minimum of effort by using UniCopy 3.5 to interrupt one, save its current status, and then load another. Each program on an UniCopy diskette resumes running at the point of interruption, so time-consuming disk I/O operations and searching for where you left off are both eliminated.

As with all the other Snapshot software packages, UniCopy 3.5 features an easy-to-use menu-driven interface that means you can learn its operation in just a few minutes.

Snapshot UniCopy 3.5.....£20.00



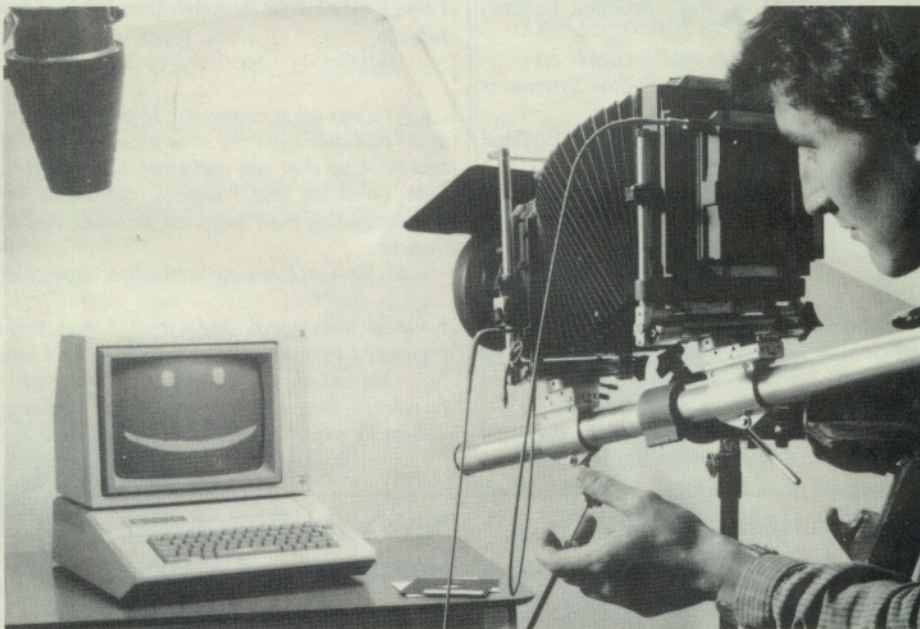
Some people go to extraordinary lengths to get a good picture

Frustrating, isn't it? That dot-matrix printer and expensive interface card were supposed to let you print your Apple's display whenever the fancy took you.

But to get a print-out, you have to crash your program or make a file. Either way, it's a slow and tedious business. Then there's that long list of control commands you need to learn.

And nowhere in the manual does it explain how you are meant to capture that help-menu, those on-screen instructions, that record-breaking high-score, that bar-chart, or those brilliant graphics when almost *all* your favourite software is copy-protected.

But hold on, you don't have to reach for the camera yet!



The Snapshot Printinterrupt. Perfect pictures every time

The Snapshot Printinterrupt is a different kind of printing utility. It doesn't matter what program your Apple II or //e is running, the Printinterrupt can interrupt it, print its display, and resume running it as though nothing had happened. No files needed, no photography, and no frustration.

What's more, the Printinterrupt's easy-to-use menu features a galaxy of really useful options which put other printing utilities to shame: You can crop text and graphics displays; independently expand both axes of the graphics screen; rotate clockwise and anti-clockwise; invert and shade; XOR, OR, or AND Pages 1 and 2, or print them side-by-side; specify your printer's different dot densities; check the form position visually and aurally; automatically centre and adjust left and right margins, and set up your printer's different character sets, fonts, etc.

Phew! And as if all that weren't enough, Epson and Epson-compatible owners even have an option which gets rid of those horizontal "pin-stripes" from their graphics print-outs!

The Printinterrupt will work with your dot-matrix printer, with your printer interface card (whether it has graphics features or not), and with all the popular 80-column cards. If the equipment you own is unusual, Dark Star Systems will support you with its unique free-of-charge configuration service.

I would like to take this opportunity to congratulate you on the Printinterrupt. I have been using this program for some months now and it works perfectly

P. Tombling — Supply Squadron
Royal Air Force, Brize Norton

The Snapshot Printinterrupt and Thirdware's FingerPrint compared by Apple User - July 1985

Thirdware must try to make the card (FingerPrint) a lot more user-friendly, and they could do a lot worse than having a look at Dark Star Systems' Printinterrupt package.

This is a software package — one of many — that is intended for use with their well-established Snapshot card. It must surely be one of the simplest packages to use anywhere.

When the present bewildering assortment of keypresses in the FingerPrint is compared to the menu-driven and apparently crash-proof approach in the Printinterrupt, then I have to come down clearly in favour of the latter.

Making a better impression: More Printer utilities from Dark Star

For MousePaint pictures on any printer, any way you choose — It's got to be MousePrintz.

MousePrintz is a patch program which adds great new features permanently to Apple's graphics painting package, MousePaint. It not only lets you print your MousePaint pictures directly to virtually any dot-matrix printer, but gives you a mouth-watering menu of versatile screen-editing and printing features as well. (See Table 1 for full details.) Options include:

- Full-screen viewing of the current picture
- Full-screen image inversion
- Full-screen mirror image
- Full-screen upside-down image
- Full-screen cropping
- Independent expansion of the X and Y screen axes
- Clockwise and anti-clockwise rotation through 360 degrees
- Shading of black or white areas
- Setting of all available printer dot densities
- Visual and aural checking of the form position
- Chart recorder mode
- Auto-centering and adjustment of left and right margins
- Removal of Epson "pin-stripes"

MousePrintz is compatible with the 128K Apple //e and the Apple //c. Price: £25.00

MousePrintz works very well and has a lot of very useful features

P. Taylor - Manchester, England

Thank you for your fine product! It sure improves MousePaint for us Epson Printer users.

Doug Trusty - Washington, USA

Merge Text and Graphics quickly and simply with your ImageMaker and the Bit Image Printer program

Bit Image Printer (BIP) by Mike Glover and Peter Meyer is an Applesoft program that lets you define all or part of a hi-res graphics screen and then save it to disk as a regular text file of hexadecimal values. Capturing graphics in this way lets you read pictures into documents produced by wordprocessors, like Applewriter, that let you use embedded printer control commands. When printed, the resulting mixture of text and graphics makes for beautiful presentations in business and education, and gives a unique stamp to your personal correspondence.

BIP also lets you create an EXEC file from a hi-res screen that will write a short Applesoft program which lets you print your picture out.

BIP requires a printer interface card with an ImageMaker EPROM installed.

Bit Image Printer..... £10.00

ScreenSnapper — The Programmer's Printing Program

ScreenSnapper is a software printing utility that makes the purchase of an expensive graphics printer card unnecessary. It is designed to greatly enhance your current printing configuration, and is intended primarily for use with your own Applesoft and machine-code programs (or other unprotected software) running on the Apple II+, //e and //c.

ScreenSnapper lets you interrupt and resume running programs in order to print the screen in a variety of ways with menu options offering enlargement, rotation, inversion, shading, etc. (See Table 1.) The menu can be called up from the keyboard, or from within a running program.

ScreenSnapper adds an extremely useful extension to Applesoft Basic that provides graphics programmers with a complete set of commands for double hi-res plotting plus additional commands which access the ScreenSnapper on-screen utilities. (See Table 2.) Other features include "what you see is what you get" facilities, and built-in print commands which can be slaved to virtually any printer card in emulation of a sophisticated graphics interface. (See Table 3.)

ScreenSnapper Price:.....£30.00

I have had a look round ScreenSnapper and am suitably impressed. The documentation is easy to understand and well written. The presentation is interesting and thorough.

Jim Goody - Southend-on-Sea

The ImageMaker series of Printer card EPROMs.

The ImageMaker EPCL: A very good product - it vastly improves Epson 8132 card use.

Fred Wright, Medical Physics Dept.
District General Hospital, Sunderland

By simply replacing the ROM chip from one of the supported printer cards with an ImageMaker EPROM, you get access to a vast range of advanced features (see also Table 1):

- Grappler-compatible graphics commands for hi-res screen dumps
- selection of all features from standard control codes as used by other popular graphics printer cards
- use of all the ImageWriter's different print densities
- full compatibility with Pascal and CP/M (and Appleworks)
- fast, easy selection of print modes, fonts and international character sets, page-length setting, fan-fold perforation skipping, margin setting and word-wrap
- insertion of text commands within wordprocessor documents and, use of bit image graphics in Applewriter files

ImageMaker EPROMs are available for the Apple Super Serial card, Epson 8132 (APL-B, C, D & E) cards, and pre-Champion Cirtech parallel cards. Price: £25.00

Table 1. Dark Star Printer Utilities Feature Guide

Feature	Printinterrupt	ScreenSnapper	MousePaint	ImageMaker
Apple supported	II+ & //e	II+, //e & //c	//e & //c	II+ & //e
Dot-matrix printer supported	All	All	All	Epson compatibles and ImageWriter
Printer interface supported	All	All	All	Epson 8132, Super Serial & Cirtech
Operating systems supported	All	DOS 3.3	Prodos	All
Programs supported	All	Unprotected	MousePaint	All text and graphics printing programs incl. AppleWorks, Wordstar, Print Shop, etc. & users' own AppleSoft programs
Program interrupt-and-resume	Yes	Yes	Yes	No
Menu-driven	Yes	Yes	Yes	No
Uses industry-standard control commands	N/A	Yes	N/A	Yes
Built-in Double Hi-Res Support	Yes	Yes	N/A	No
Enables mixing of Text and Graphics	Yes	Yes	N/A	Yes
80-column text screen dumps on Apple //e	Yes	Yes	N/A	Yes
80-column text screen dumps on Apple II+	Yes	Yes	N/A	No
Magnification of the X and Y axes up to 8 times	Yes	Yes	Yes	Yes
Clockwise rotation	Yes	Yes	Yes	Yes
Anti-clockwise rotation	Yes	Yes	Yes	No
Inversion	Yes	Yes	Yes	Yes
Supports all available printer fonts and character sets	Yes	Yes	Yes	Yes
Supports all available printer dot-densities	Yes	Yes	Yes	Yes
Optional printed shading of black or white picture areas	Yes	Yes	Yes	Yes
And/or/ex-or of Pages 1 and 2	Yes	Yes	Yes	Yes
Visual and aural indication of the form position	Yes	Yes	Yes	No
Auto-centering of form position	Yes	Yes	Yes	No
Left and right margin setting	Yes	Yes	Yes	Yes
Chart recorder mode	Yes	Yes	Yes	Yes
Enables removal of Epson pin-stripes	Yes	Yes	Yes	Yes
On-screen viewing of MousePaint picture	Yes	No	Yes	No
On-screen viewing of all standard text and graphics pages	Yes	Yes	N/A	No
On-screen image inversion	No	Yes	Yes	No
On-screen mirror image	No	Yes	Yes	No
On-screen upside-down image	No	Yes	Yes	No
On-screen cropping window	Yes	Yes	Yes	No
Adds commands to Applesoft	No	Yes	No	Yes
Prints hi-res graphics stored as regular text files of hex values	No	Yes	No	Yes

Table 2. ScreenSnapper Basic Extension Commands

In addition to its menu-driven screen-dump and printer-card slaver capabilities, ScreenSnapper offers Applesoft Basic programmers an extended set of versatile Basic commands for on-screen special effects and double hi-res plotting:

1. Double Hi-Res Graphics Commands (for Apple //e with extended 80-column card and //c only):

& HGR	Display and clear to black the DHIRES (double hi-res) screen (560 x 192).
& HCOLOR= n	Set colour (from 0 to 15) to be used by plot. If n = 128 then colour = reverse (XOR plotting). Colours are the same as lo-res.
& HPLOT x, y	Use same as standard HPLOT but X co-ord up to 559; also use HPLOT TO for lovely straight lines.
& HI	Set point mode for maximum definition. Has some colour restrictions (eg., colour lines may be broken).
& LO	Set full 16 colour mode. No colour restrictions (contiguous lines but less definition than HI).
& GMERGE	Convert hi-res pictures on Pages 1 and 2 to one double hi-res picture and display it. (Note that colours are not preserved.)

2. Utility Commands (used in your programs for on-screen special effects):

& OR	Logical OR of hi-res screens 1 and 2. The result is copied to the current work screen.
& AND	Logical AND of hi-res screens 1 and 2.
& XOR	Logical XOR of hi-res screens 1 and 2.
& VFLIP	Flip current work screen upside down.
& HFLIP	Mirror-image current work screen.
& WIPE m1 ,m2	Cause a smooth video wipe between modes 1 and 2. (m= video switch. See below, "3. Valid Switches".)
& SPLIT m1, m2, p, n	Split screen: Top = mode 1, Bottom = mode 2, position = p (1 to 191), duration = n fiftieths of a second (1 to 32768) or until a keypress.
& SW m1,m2,etc.	Set video soft switches indicated. Any number of switches may be given, but they must be separated by commas.

3. Valid Switches (equal to m in Utility commands):

G	Set GRAPHICS switch
T	Set TEXT switch
N	Set NO MIX switch (all text or all graphics).
M	Set MIX switch (for mixed TEXT and GRAPHICS modes).
1	Set PAGE 1
2	Set PAGE 2
L	Set LO-RES switch
H	Set HI-RES switch
4	Set 40-column switch (//e and //c only).
8	Set 80-column switch (//e and //c only).
S	Set SINGLE resolution switch
D	Set DOUBLE resolution switch

Examples:

& SW G,M,8,D	Display the double resolution screen mixed mode.
& WIPE G,T	Smooth wipe from Graphics to Text.
& SPLIT T,G,95,50	Split screen to Text at the top and Graphics at the bottom at line 95 (half way down) for 1 second (or until a keypress).

Note that SPLIT and WIPE are not available on the Apple //c.

Table 3. ScreenSnapper and ImageMaker Printer Control Commands

Intelligent printer interfaces feature control commands which you can use to fully exploit all the graphics features of your dot-matrix or ink-jet printer. An industry-standard command set (based on Orange Micro's Grappler) is now generally adhered to in order to ensure software compatibility. Both ScreenSnapper's printer-card slaver and the ImageMaker firmware rigidly comply with this standard and offer several unique features besides. Here's the checklist:

<Ctrl>I followed by:	Function:
£	Substitute £ for \$
\$	Re-enable \$ symbol
n<	Send n to printer as 8-bit byte
n?	Applesoft TAB-fix
n>	Send Hexadecimal string of bytes to printer
@	Initialise printer, reset defaults
A	Turn ON Auto-linefeed
B	Turn ON Bell
C	Turn OFF Bell
D	Set Double strike mode
E	Set bold (Enhanced) mode
nF	Select Font/character set number n
G	Dump Graphics (see below)
H	Pass High bit of data to printer
I	Turn ON screen echo
J	Turn OFF screen echo
K	Turn off (Kill) auto-linefeed
nL	Set Left margin
M	—
nN	Set line length to maximum of n columns
O	—
nP	Set page length to n lines & skip page breaks
nQ	Set print density to n
nR	Set Right margin for word-wrap
nS	Dump text Screen
nT	Set Transparent mode for next n characters
U	—
V	Turn OFF double strike/width or bold mode
W	Set double Width text mode
X	Mask high bit
Y	Disable printer card (like PR£0)
Z	Reset printer card defaults

Graphics Command Summary

<Ctrl>IG followed by:	Function
2	Select Page 2 for printing
D	Print Double size
E	Print Enhanced
F	Overstrike (Epson "pin-stripe" Fill)
I	Print Inverse
J	Shade white areas
K	Shade black areas
O	OR pages 1 and 2
P	AND pages 1 and 2
Q	EX-OR pages 1 and 2
R	Rotate
S	Scale X axis x 2
T	Scale X axis x 3
U	Scale X axis x 4
V	Scale X axis x 5
W	Scale Y axis x 2
X	Scale Y axis x 3
Y	Scale Y axis x 4
Z	Scale Y axis x 8

It might even happen to *your* software

Even *experienced* professionals have their off days. Can you be certain you will never accidentally corrupt or erase your copy-protected program disks? And what will you do when those irreplaceable disks finally wear out?

Of course you may be lucky. For you, a damaged disk may mean only weeks, maybe months, of waiting for a costly replacement. If you're *not* so lucky, the company that produced the software you depend on is now out of business.

The Snapshot Copykit. Peace of mind at the press of a button.

The only *effective* way to safeguard your software investment is to make backups. Some publishers encourage you to copy their products, others use copy-protection to make it as difficult as possible.* The Snapshot Copykit is an easy-to-use device which helps you to make backups of your essential programs whether they're copy-protected or not. It will copy memory-resident software in less than half a minute, and it's invaluable for dealing with multi-access programs too.

Using Copykit backups rather than your valuable originals doesn't just make sense from a security point of view. Fast saving and loading of total memory saves hours of time when you need to work with spreadsheets or other programs which take an eternity to handle large files. And if games are your thing, there's no need to go through the easy, boring levels of play every time you resume the action — you can use the Copykit to go straight to the highest levels and return to them again and again.

* Check the terms of your software license - by making even an archival backup, you may be in breach of Copyright.

Why the Copykit is better

Bit-copiers like Locksmith and Copy II+ are quickly overtaken by new copy-protection methods and hardware updates, and they're expensive to upgrade. They'll only work with a

limited number of operating systems, and the backups they create are exact duplicates of the protected (and inconvenient) originals.

The Copykit isn't troubled by copy-protection and will work with *any* operating system, non-standard or otherwise. And Dark Star's cheap update policy makes it easy for you to upgrade to keep up with new hardware. Copykit backups are easily examined and customized, and can be transferred to other media, thus reducing your dependence on easily-damaged 5.25" floppies.

The Copykit is also more versatile. Taking frequent backups of work in progress, for example, is an essential part of *sensible* computer use. Yet this is seldom — if ever — done, because it is time-consuming and inconvenient to close down your program, make a copy of the work-disk, re-boot and find the place where you left off. The Copykit's ability to save the entire

contents of memory to disk at any time and then resume running your program from the point of interruption overcomes such difficulties and makes the loss of many hours work much less likely. And try using a bit-copier to suspend a running program while you answer the telephone or make a cup of coffee!

The Snapshot Copykit reviewed in Hardcore - April 1985

The ability to save a program at the point of use is, I believe, distinctly advantageous. For instance, Printshop can be saved at the point of producing a set printing routine, like a letterhead, and it will then always be ready to print this item without having to go through the setting-up procedures.

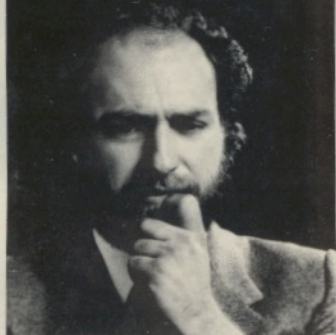
Game players will find the system an answer to their prayers.... I have found it without doubt the most useful utility I possess....



The Snapshot Shuttle.

A flexible alternative to integrated software

Where can I find an integrated package that combines the features and power of the programs I already own?



What will I do with the programs I use today if I buy integrated software tomorrow?



What if I can't use my old files with the new software?



Will I have to spend yet more time and money learning something completely different?



You too have probably considered the benefits of buying a program that does several different jobs from one disk. After all, most computer users need to switch from one task to another several times a day. And repeatedly closing down your current program, booting a different disk and then trying to find where you left off wastes valuable time and disrupts your flow of work.

Integrated software would be the obvious solution if it weren't for the fact that one Apple II user is likely to have very different needs from another.

The remarkable Snapshot Shuttle is an inexpensive device that gives you a simple alternative to worrying about the drawbacks of integration. It lets you keep up to four different programs in memory at any one time.

You want to combine the best word-processor with the fastest spreadsheet, a versatile comms package and *Hitchhikers' Guide to the Galaxy*? Fine. With the Shuttle you're free to choose.

You can switch rapidly between your programs with just the flip of a switch, and each one resumes running exactly where it was interrupted. No fuss, no waiting. The Shuttle even works happily with integrated software!

You already know everything you need to know to use the Shuttle. There are no new commands for you to memorize and no piles of impenetrable documentation to wade through. And because it uses the interrupt-and-resume power of the Snapshot card, the Shuttle gives you access to a whole new world of great, easy-to-use utilities that will enhance your Apple at home and in the office.

System Requirements

Apple II+ or //e with minimum 128K RAM and 1 disk drive.

Memory expansion cards

The Shuttle will let you load 2 x 64K programs into a 128K Apple. Naturally, the more memory you have, the more programs you will be able to load. The Shuttle works with all the popular RAM cards. (See page 9 for more details).

The Snapshot Shuttle.....£20.00
With Snapshot Card.....£115.00

Snapshot Shuttle reviewed in Apple User - May 1986

The beauty of the Shuttle system is that it will work with any program designed to run on an Apple II, whether it is copy-protected or not, and no matter what operating system it uses.

.....I have to admit that I'm very impressed with this addition to the Snapshot range of utilities. The Shuttle is a well-proven product that is very easy to use, and the range of RAM cards and 80-column cards that Dark Star Systems supports is large, and growing larger all the time. The Shuttle's menu-driven front-end reduces the learning curve for users to just a few minutes and obviates the need for extensive (and expensive) written documentation. Of course, there will always be those who feel the only use for this kind of facility is for rapidly hiding the latest adventure game and switching over to the wordprocessor or spreadsheet program just as the boss appears. But, for serious computer users, the Shuttle provides an inexpensive and effective introduction to the joys of multi-tasking.

The Snapshot Shuttle reviewed in Australian Apple Review - January 1986

We now use it (the Shuttle) to run a wordprocessing program and a spelling checker with an 80,000 word dictionary. We create a text file, switch to the spelling checker, correct the spelling and then switch back again. It means we never have to bother with loading and unloading programs from disks.

Data transfer made easy with Quality Software's Universal File Conversion

If you use more than one Apple II operating system, Universal File Conversion is going to make life a lot easier for you. Use it to move programs and data among the five main Apple operating systems — DOS 3.3, CP/M, Pascal, SOS, and Prodos. Now you can merge a section of your Visicalc spreadsheet into a CP/M Wordstar document, use Prodos AppleWorks data with Pascal Apple Business Graphics, use data from one program with just about any other! Using the program, you can also:

- format disks for any operating system
- create CP/M files without a Z-80 card
- convert Basic programs from one operating system to another

The Universal File Conversion comes complete with an interesting and thorough manual that will teach you everything you need to know about how your various operating systems store files on diskette.

Universal File Conversion.....£32.00

Bill Allen explains why Dark Star recommends Universal File Conversion for use with the Shuttle multitasker (from Apple User - May 1986):

It is only fair to point out that there is more to integration than just swapping from one kind of program to another - data have to be swapped as well. Many manufacturers of the more popular suites of business packages are fully aware of this, and offer a common format for transporting data from one program to another. For example, the well-

known DIF (Data Interchange Format) is very useful for such packages as Visicalc, Visitem, and Visiplot. (DIF files are recognized by virtually all other spreadsheet, database and business graphics programs as well.)

Programs like AppleWorks and the Prodos version of AppleWriter //e, which run under a common operating system, are also able to interchange standard text files.

Data transfer problems do arise, however, if we have a CP/M program - Wordstar, say - running in one workspace, and Visicalc running in another. How do we get that section of the spreadsheet over to our wordprocessor file? The people at Dark Star have anticipated that question and have a ready answer in the shape of the "Universal File Conversion" program (UFC for short) which they buy in for their customers from the American-based publisher, Quality Software. So, in our hypothetical example, we would simply print the appropriate section of our Visicalc spreadsheet to disk as a text file, switch to the workspace containing the UFC and convert the Visicalc file to CP/M, and then switch to Wordstar in order to load it into our document. True, you could do all this without the Shuttle, but you could also go grey doing all the closing down, disk-swapping, re-booting, and searching for the place you left off, many times over, that such a task would normally entail.

The Power to Grow Memory Expansion Cards for the Apple II

Over the last year or so, the cost of RAM chips has plummeted to a level that places the benefits of memory expansion well within the financial reach of most Apple II users.

What are those benefits? Traditionally, there have been two reasons to invest in more RAM: For storage use, as a high-speed, solid-state, pseudo-disk drive (generally referred to as a ramdisk), or as a means of enlarging the available work area of applications programs like spreadsheets, databases, etc.

To these stalwarts may be added a relatively recent innovation: The partitioning of memory to hold several different programs (and/or operating systems) at once and allow rapid switching between them. This is a built-in — but limited — feature of Cirtech's Flipper one MegaByte card; it is a feature which can be added to *any* memory card with Dark Star's Snapshot Shuttle. The Flipper's program manager will only work with unprotected programs, and then *only* when the user is at operating system command level. The more-powerful Shuttle can interrupt *any* running program, copy-protected or otherwise, and resume it from the point of interruption.

These days, prospective purchasers of extra Apple memory are faced with a bewildering — and burgeoning — variety of different cards, each with its own "unique" features and benefits. While it is impossible to provide here a definitive guide through the memory maze, what follows is an attempt to provide an overview of what is available *and* what is possible. We'll also try to highlight some of the pitfalls which await the unwary.

There are basically two types of memory expansion card the average Apple owner (if any such animal exists) can install: the first is designed to fit into any of the standard slots on the Apple II, II+ or IIe backplane. The second, because it doubles as an Apple IIe 80-column card, must be installed in the IIe auxiliary slot and is therefore (not surprisingly) useless for owners of any computer other than the IIe.

Honourable mention might also be given to two other categories of memory card: the dedicated ramdisk with a back-up battery that keeps data in a viable condition at power-off, and the "bubble" memory card which (like ROM) retains data until it is erased and rewritten. The high cost of such cards precludes their consideration by the general Apple user and they are thus excluded from further discussion here.

The Saturn 128K Standard

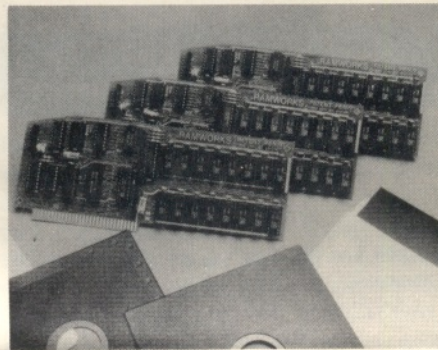
Until relatively recently, the most prevalent memory expansion cards were those designed to use any standard Apple II slot, and the most popular of them was the Saturn 128 made by Titan Technologies of Ann Arbor, Michigan in the United States. The Saturn card was marketed with software which made it useful as a DOS 3.3, Pascal or CP/M ramdisk, and as a spreadsheet expander. The latter use in particular led to its initial great success. With the Saturn 128 installed in a 48K Apple II and using a program called VC Expand, a Visicalc user could increase the size of his or her spreadsheet from a paltry 18K to about seven times that.

As often happens with an idea whose time has come, other manufacturers were quick to jump on the

bandwagon. Their efforts were sometimes compatible with the Saturn card (eg, Ramrod, Ramex, U-Ram and Vision 128) and sometimes not (eg, Legend 128 and Rocon 128). The Saturn "standard" prevailed over the rest, probably because after a while the world's markets became flooded with exact — but inexpensive — copies of Titan's card and software emanating from the Far East.

Apple IIe Memory Expansion

The 1983 introduction of the Apple IIe offered Apple users an alternative means of memory expansion through the "extended" 80-column card designed for



installation in the IIe's auxiliary slot 3. This had the advantage over the old-style memory cards of leaving the other Apple slots free for different uses — a considerable asset in view of the plethora of available peripherals which make use of those slots.

The extra 64K available on the extended 80-column card was designed primarily for use by applications programs running under ProDOS, Apple's successor to DOS 3.3. ProDOS programs could automatically recognize the extra memory and invade it. A Visicalc spreadsheet, then, could be expanded to 95K, the AppleWorks "Desktop" to 55K, and so on. For users of programs running under DOS 3.3 or CP/M which didn't recognize the extra 64K, that memory could be configured as a ramdisk with utilities like RamDrive.

Another useful feature of the auxiliary 64K was its enhancement of graphics resolution on the IIe. That extra RAM enabled graphics programs like Broderbund's Dazzle Draw, and Beagle Brothers' Beagle Graphics to take advantage of the far superior display capability of the double high-resolution screen (560 x 192 instead of the normal 280 x 192).

The Titan Neptune Card

While several hardware manufacturers introduced their own 64K extended 80-column cards to compete with Apple's version, it was Titan Technologies who again led the way to further memory expansion with the introduction of their Neptune card. This was an extended 80-column card which could be expanded in increments of 64K to a maximum of 192K which (again with the appropriate software) could be used either for ramdisk storage or for increasing the size of spreadsheets.

Ramworks

The Neptune card had the large Apple IIe memory field pretty much to itself for quite a while. Then, in late 1984, Applied Engineering introduced a

reasonably priced extended 80-column card called Ramworks which was expandable to 1 Megabyte (1024K). Ramworks was different because it was aimed specifically at owners of the AppleWorks integrated wordprocessor, spreadsheet and database program. The main benefit offered was the ability to expand the AppleWorks Desktop from 55K to an amazing (at the time) 736K. (See below for details of what this so-called Euro version of Ramworks can do now.)

Ramworks II

Ramworks, like its predecessors from Titan Technologies, has its imitators. Again, some of these are direct copies (like the Glanmire 512K card and MegaRamPlus from AST Research), some are not. Applied Engineering responded to this competition in late 1985 by introducing a refinement to Ramworks called (with great originality) Ramworks II. This one goes right up to 5 Megabytes of RAM, but that's as much as we intend to say about it because, for European Apple IIe owners, it has a major drawback: It was designed for US-manufactured Apples. US Apples are identical to European Apples in virtually every respect bar one — the situation of the auxiliary slot. On the American motherboard, the auxiliary slot is situated at the side, close to the power supply. This position allows the installation of very large cards, and yes, you guessed it: Ramworks II is too large to fit into an European Apple. No matter. Applied Engineering have updated the original Ramworks card to almost the same level as Ramworks II, and are marketing the thing as the Euro version.

MultiRam IIe

Another card with a design problem was Checkmate Technology's Ramworks-workalike (expandable to 6MB), the MultiRam IIe. The trouble with the Checkmate card was that although not physically too big to fit in the case of the European Apple, its bottom rear-end would clash with the standard Slot if installation were attempted. The Checkmate designers have since re-jigged their card, but European buyers should be wary of ordering MultiRam without seeing which version they're getting. (The one to beware of has RAM chips at the back, roughly in line with the gold edge-connector.)

The Apple II Memory Expansion Card

Apple itself has now entered the memory expansion market with its own 1 Megabyte card, and it is likely that *this* one will establish a new standard to which software publishers will adhere in future. The Apple card is designed to look like a disk drive to DOS 3.3, ProDOS and Pascal 1.3 programs, and therefore needs no special ramdisk software. It is certain that future versions of popular applications programs will automatically use all or part of the 1 MegaByte card for expansion space as well as disk-caching.

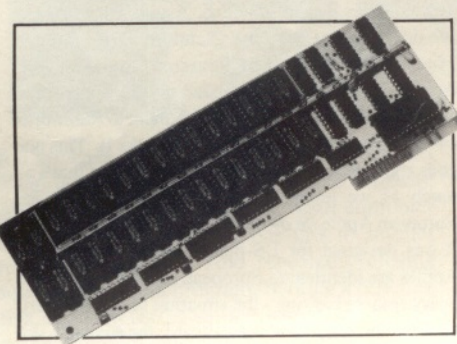
Unlike Ramworks, MultiRam, Neptune, *et al*, the Apple II Memory Expansion card uses a standard — rather than the auxiliary — slot. While this does mean you have to take up a valuable slot to use it, it also means that (1) if you already own an ordinary IIe 80-column card, you don't have to replace it, (2) it will

work on the good old II+, and (3) you can install one Megabyte of memory for every vacant slot you've got.

Other manufacturers have not been slow to see which way the wind is blowing, and the Apple card has now been joined by compatibles from AST Research in the US with their (256K expandable to 2 Megabyte) "SprintDisk" and the UK's very own Cirtech with their 1 Megabyte "Flipper".

The Cirtech Flipper

Cirtech's Flipper is the big-memory card Dark Star Systems recommends to Snapshot Shuttle users and others because, at the moment, it has to be the most inexpensive, versatile and compatible ramcard. Unlike most of its more expensive rivals, the Flipper is designed to emulate Apple's own Apple II Memory Expansion Card. That means future software compatibility is guaranteed — no small consideration in view of the high value of the average user's software and hardware investment.



Like Apple's card, the Flipper requires no pre-boot software to act as a ramdisk for programs running under Prodos, DOS 3.3, Pascal 1.3, and CP/M (versions 2.20B, 2.23 and 3.0). And you can use it to expand the AppleWorks 1.3 Desktop to 1012K. But the nicest thing about the Flipper is the way it lets you segment its memory for a variety of purposes. You can use part of the card for the Snapshot Shuttle, while you allocate several different ramdisks (under several different operating systems) to the remainder. For example, you can have a CP/M program in one Shuttle workspace which uses files stored in a segment of the Flipper's memory designated as a CP/M drive; a Prodos program in another Shuttle workspace accessing files from the Prodos ramdisk, and so on. No other memory expansion card on the market gives you this sort of versatility at any price.

The next best thing to a Flipper in the Apple //e is a Ramworks Card

For //e owners, Applied Engineering's Ramworks is the next best choice — especially if you are short of slots. And the price has now tumbled to a much more affordable level. The Euro-Ramworks is now expandable from 128K to 2.5MB (2560K). AppleWorks owners with a Ramworks card containing 256K and up can now load the entire program into memory (saving a considerable amount of time used in disk access), and increase the size of the AppleWorks Desktop to an incredible size.

Ramworks also offers AppleWorks users additional benefits like print-spooling, over three times the normal number of records possible in a database file, and auto-segmenting of large files so they can be saved to several different disks. In addition, software for DOS 3.3, Prodos, Pascal and CP/M ramdisks, as well as Visicalc expansion is available. A useful hardware add-on for the card is an RGB option which saves another slot when colour display is required.

Ramcard Feature Comparisons

Ramcard	Compatible Computer	Maximum RAM	AppleWorks Desktop Expansion	Ramdisk Software	Price *
Titan/Saturn RAM (Titan)	32K 64K 128K	II, II+ & //e	32K 64K 128K	NO	DOS 3.2, \$ 179.00 DOS 3.3, \$ 199.00 CP/M & Pascal \$ 239.00
Titan Neptune (Titan)	64K 128K 192K	//e	192K	NO	DOS 3.3, £ 229.00 CP/M & Pascal £ 264.00 £ 309.00
Ramrod 128 (Dark Star)	128K	II, II+ & //e	128K	NO	DOS 3.2, £ 90.00 DOS 3.3, CP/M & Pascal
<i>Special Features: Compatible with Saturn 128K and supporting software.</i>					
Legend 'S' Card (Legend)	64K 128K 192K 256K 512K 768K 1MB	II, II+ & //e	1MB	YES	DOS 3.3, CP/M & Pascal \$ 315.00 \$ 375.00 \$ 435.00 \$ 495.00 \$ 595.00 \$ 695.00 \$ 795.00
Legend 'E' Card (Legend)	64K 128K 192K 256K 512K 768K 1MB	//e	1MB	YES	DOS 3.3, CP/M & Pascal \$ 299.00 \$ 359.00 \$ 389.00 \$ 419.00 \$ 519.00 \$ 644.00 \$ 769.00
MultiRam //e (Checkmate)	64K/RGB 128K/RGB 320K 576K/RGB 768K 1024K/RGB 1280K/RGB 1536K/RGB 1792K/RGB	//e	1.5MB	YES	DOS 3.3, Prodos, CP/M & Pascal \$ 185.00 \$ 203.00 \$ 222.00 \$ 279.00 \$ 334.00 \$ 579.00 \$ 520.00 \$ 548.00 \$ 578.00
<i>Special features: includes AppleWorks expansion software; has port for connection to optional 65C816 (16-bit) co-processor card, and RGB included.</i>					
Ramworks (Applied Engineering)	128K 256K 512K 1.0MB 2.5MB RGB Option	//e	2.5MB	YES	DOS 3.3, Prodos, CP/M & Pascal £ 199.00 £ 219.00 £ 269.00 £ 369.00 £1499.00 £ 129.00
<i>Special features: includes AppleWorks expansion software, print-spooling, and ramdisk software.</i>					
Ramworks II (Applied Engineering)	64K 256K \$ 219.00 512K 1.0MB 1.5MB 3.0MB RGB option	//e	3MB	YES	DOS 3.3, Prodos, CP/M & Pascal \$ 179.00 \$ 269.00 \$ 389.00 \$ 549.00 \$1699.00 \$ 129.00
<i>Special features: includes AppleWorks expansion software, print-spooling, and ramdisk software; has port for connection to optional 65C81 (16-bit) co-processor card.</i>					
Apple II Memory Expansion Card (Apple)	256K 512K 768K 1MB	II, II+ & //e	1MB	YES	NO £ 245.00 £ 300.00 £ 355.00 £ 410.00
<i>Special features: automatically recognized as a ramdisk by DOS 3.3, Prodos and Pascal 1.3.</i>					
Cirtech Flipper (Cirtech)	1MB	II, II+ & //e	1MB	YES	NO £ 350.00
<i>Special features: automatically recognized as a ramdisk by DOS 3.3, Prodos, Pascal 1.3 and Cirtech CP/M Plus; includes memory management firmware allowing co-residence of several different operating systems.</i>					

* Prices are at the latest published level at the time of going to press and are marked in US Dollars unless a product is generally available in the UK. Sterling prices are either Manufacturers Recommended Retail Prices or those set by the British distributor, and are exclusive of VAT. Check our price list for discounts on some cards.

CIRTECH:

More power to your computer

Cirtech CP/M Plus (CP/M 3.0) systems for the Apple //e and //c

Cirtech's new //e and //c Z80 modules are two of the finest Apple co-processors available today. Cirtech's superior design skills give you not only the best available price/performance ratio, but better reliability, greater efficiency, and a cooler running Apple too.



Both modules come supplied with your passport to some of the world's finest business software — Cirtech's unique version of CP/M Plus from Digital Research. Imagine the power of DBase II or Wordstar running with an operating system that offers features like these:

- Compatibility with Prodos-oriented devices like the Flipper 1MB card, the Apple II Memory expansion card, Unidisk 3.5, and ProFile hard disk
- Full use of the 128K of program memory available on the extended Apple //e and //c
- Print-spooling (12,000 character printer buffer)
- Password protection and file time/date-stamping
- //c printer, disk drive and modem port support with invisible buffering of input/output from both serial ports and the keyboard
- "Toolkey", an innovative range of functions that can be accessed at any time — even while running a program — allowing disk copying and formatting, instant screen dumps, etc.
- "Mousekey", a tool which allows you to use the Apple //c Mouse with any CP/M program (current version does not support Apple //e Mouse)
- A disk-based Help system and "user-friendly" error messages which let you retry without sending you back to system level

Save a slot!

The Cirtech //e CP/M Plus module features the *double-fast* 8MHz Z-80H processor, and it plugs straight into your Apple's motherboard — no slot required. You will, however, need an extended //e 80-column card installed in auxiliary slot 3.

Cirtech //e Z80 module with CP/M Plus£108.00

Cirtech //c Z80 module with CP/M Plus£175.00

The CP/M Plus Programmer's Pack

For Apple CP/M developers who have been waiting for the opportunity to toss ALDS out of the window, the CP/M Plus Programmer's Pack is available as a separate item. Programming utilities like MAC and RMAC (macro assemblers), ZSID (symbolic debugger), LINK, LIB, SAVE, HEXCOM, ED, DUMP and XREF come complete with documentation which is both comprehensive and informative.

CP/M Plus Programmer's Pack£89.00

Apple II+, //e and //c Z80 Co-processors for CP/M versions 2.20B and 2.23

Cirtech's Z80 cards for the Apple II+ and //e are functional equivalents of the Microsoft Softcard, but are less than half the size and use half as many components. Apart from the obvious benefit to your pocket, that tight design means that unlike the Z80 co-processors offered by other manufacturers, the Cirtech cards won't give you a hard time trying to keep your Apple cool.

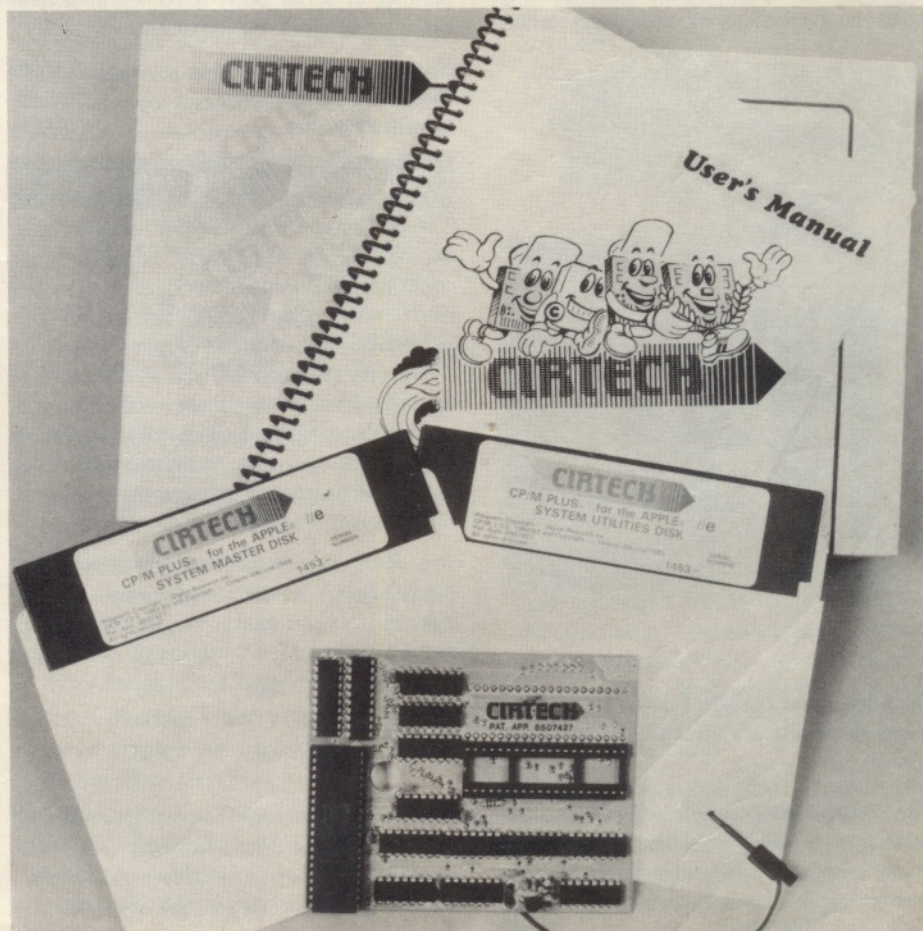
The original Cirtech Apple //c Z80 module simply plugs into the motherboard, right inside the case! Once it's installed, you can run all your standard Apple II CP/M programs without modification. DOS and Prodos programs run as normal.

If you're quite happy to continue using CP/M versions to 2.23, a Cirtech Z80 co-processor card or module is the ideal replacement for — or addition to — your existing set-up.

Cirtech Z80 II+ version..... £40.00

Cirtech Z80 //e version..... £40.00

Cirtech Z80 //c version..... £77.00



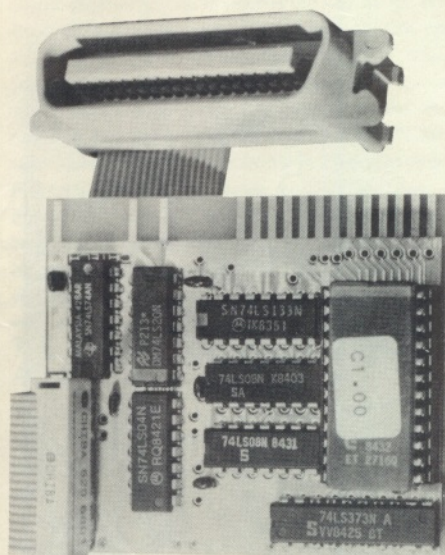
Getting into print with the Champions!



Making the most of your printer's graphics features can be an expensive business, particularly if you already own a "dumb" — or non-standard — printer card.

If you don't own a card which can be upgraded with one of Dark Star's ImageMaker EPROMs, Cirtech's "Champion" printer cards are the next best option. They give you more features at less cost than other "intelligent" printer interfaces, and software compatibility is maintained with a full set of Grappler-type commands just like the ImageMakers'.

All the Champions are fully compatible with DOS 3.3, Prodos, Pascal and CP/M, and work perfectly with programs like AppleWorks that give less intelligent printer cards big headaches. And every Champion card comes complete with all the necessary cables and instructions you need to get started.



The Champion Parallel Card - the standard graphics-capable card for parallel dot-matrix printers.....**£45.00**

The Champion ImageWriter Interface - for owners of Apple's excellent ImageWriter printer who want the best industry-standard graphics capabilities at the best possible price. (Includes serial cable)..... **£60.00**

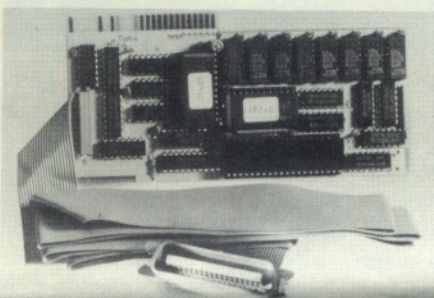
The Champion Serial Adaptor - with this easily installed addition to your Champion card, you can benefit from telecommunications facilities by switching from parallel to serial mode with a single control-command. All the standard Champion print features are available through the serial interface, so it's a great way to get the most from your serial printer too..... **£15.00**

Serial Printer Cable - for printing with the Champion Serial Adaptor.....**£9.00**

The Champion CacheCard 16K and CacheCard 64K - for those of us who don't want to wait while printing monopolizes our valuable computing time, here are two buffered versions of the Champion printer card;

CacheCard 16K for everyday printing needs.....**£85.00**

CacheCard 64K for extra long print runs.....**£108.00**



The Cirtech CacheBox - the CacheBox is a 64K in-line buffer for use with your existing parallel or serial port. It comes in several different versions for maximum versatility:

Serial and Parallel..... **£157.00**

Serial/Serial..... **£135.00**

Parallel/Parallel..... **£135.00**

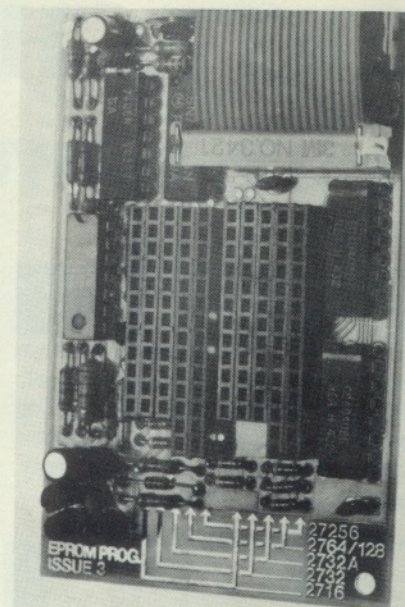
Fast, hassle-free EPROM blasting

Cirtech's easy-to-use EPROM programmer sits outside the Apple case, attached to its controller card by two feet of cable. So you won't waste time scrabbling around the motherboard looking for dropped chips!

The programming software is fully menu-driven and features automatic verification and erasure checking. And it's all resident in ROM on the controller card, so there are no disks to load. Here are the programming speeds for Intel-compatible EPROMs:

EPROM type	Programming Time in Seconds		
	Minimum	Maximum	Typical
2716	1.5	112	92
2732/A	2.5	225	190
2764	46	450	70
27128	92	900	120
27256	154	1800	300

If you're a printer user, you can save a slot by using the EPROM controller's additional parallel port as an Epson command-compatible printer driver. All you need is a parallel cable!



EPROM Programmer with controller card.....**£81.00**

EPROM Programmer (for controller card owners).....**£50.00**

Controller card.....**£31.00**

Parallel Cable (for controller card printing).....**£9.00**

80-column cards for the Apple //e

The Cirtech //e 80-column cards function *exactly* like everyone else's, but no other company can match Cirtech quality at these prices!

There are two versions; one with 64K extended memory, and one without. The extended card lets you access the full data-handling capabilities of 128K programs like SuperCalc3A and AppleWorks, and the double high-resolution displays of Dazzle Draw, Fantavision, MouseCalc, etc.

If you want the standard unextended 80-column card right now, you can always return it to us for upgrading when you need the extra memory. So long as you bought the card from us, it arrives in its original packaging and is still in working order, we'll exchange it for the 64K version there and then.

Standard //e 80-column card.....**£27.00**

Extended 64K //e 80-column card... **£54.00**

Standard for Extended exchange.....**£27.00**



Different Strokes From Different Folks

Here's some useful information supplied by our technical department and by Dark Star customers that will help you take your Apple closer to the limit of its capabilities.

Jaromir Smejck of the Czechoslovak Centre of Fine Arts in Prague has made some interesting points concerning use of the Copykit and Printerrrupt Snapshot software packs which we're happy to pass on here. Thank you Jaromir!

Remember: if you find that one of our products has helped you to solve a problem that's had you tearing your hair out up until now, you may be able to save some of your fellow Apple users from premature baldness as well by passing your tip to us for printing in the Global Village Newsletter. We're not offering pots of gold for your services, but just think how great you'll feel basking in the warm glow of admiration that envelops you as thousands of your fellow sufferers give thanks to the person who led them out of darkness into light!

Using the Copykit to speed-up AppleWriter with Videx's Ultraterm Card

Jaromir Smejck was irritated by the tedious necessity to boot two disks and make about ten keystrokes before he could start work with AppleWriter and its Glossary on the Ultraterm screen. Here's his method for cutting out most of that hard work by taking advantage of the Copykit's ability to save and reload total memory at any point in the operation of a running program:

1. Use the Copykit 'Boot a disk' option to load in Ultraterm's Preboot and go through all the stages until AppleWriter is working on the Ultraterm screen as normal.
2. Load your glossary file (if necessary).
3. Use the Snapshot trigger to interrupt AppleWriter after disk I/O has taken place. Since Ultraterm is *not* a standard text display card, pressing the Snapshot trigger will appear to freeze AppleWriter, but will do nothing else. In order to get to the Copykit Menu displayed on the 40-column screen, press the <Ctrl> and <Reset> keys simultaneously.
4. Place a Copykit disk in the appropriate drive and use the "Save" option from the menu to dump memory to disk. (If you are working with an US-made Apple IIe which contains both an extended 80-column card and Ultraterm, select the 64K dump option to get an auto-booting disk.)
5. You now have a copy of AppleWriter which will automatically use Ultraterm without a preboot or all those keypresses. When you come to boot that disk, remember to press <Ctrl><Reset> in order to display the Ultraterm screen when your disk-drive stops spinning.

Using the Printerrrupt to overcome bugs in Fontrix's print drivers

According to Jaromir Smejck, Fontrix versions 1.0 and 1.2 don't adequately support Epson FX80 and FX85 printers. The problem appears to be with dot density settings which distort the aspect ratio and create badly proportioned hard-copy of screen images. This is quite a common problem, and not just with Fontrix. Some programs (MousePaint, for example) don't support Epson and other popular dot-matrix printers at all!

Hitherto, the only way to overcome this problem was to quit Fontrix after creating a graphic and use printer card control commands to achieve a correctly proportioned print-out. As Jaromir writes: *"This was a very time-consuming process, especially if you wanted to create more screens. Now, thanks to the Printerrrupt, using Fontrix and printing the results in the right proportions (Printerrrupt Density Option 1) is a breeze!"*

How to capture graphics screens from protected programs and save them to disk.

A lot of programs feature great graphics displays but offer you no facilities for saving them to disk. No problem if the program you're running isn't copy-protected, but.... Needless to say, we've had a lot of requests from Printerrrupt owners to supplement the dump-to-printer option with a dump-to-disk feature.

Unfortunately, Printerrrupt author Andy Beveridge packed so many features into the space available in Snapshot's RAM that there's barely room to swing a byte let alone a fat disk I/O routine. All is not lost, however. There is a simple way to capture and save-to-disk a hi-res picture from a copy-protected program using the Snapshot Copykit. Here it is:

DOS 3.3 and Prodos Hi-Res Dumps

1. First, round-up the essential ingredients: Your program disk, a formatted Prodos or DOS 3.3 disk and a Copykit disk.
2. Load the Copykit into your Snapshot card and use the menu "Boot" option to get your subject program up-and-running. Use the Snapshot trigger to interrupt it when the required screen is displayed.
3. Select the "Set Video Mode" option and check whether the display you want is on Hi-Res Page 1 or Page 2.
4. Select the Exit to Monitor option and, if the display you want sits on Page 1, enter the following line:

6000>2000.3FFFM <Return>

("<Return>" means press the Return key and should not be typed out in full)

or if your display is on Page 2:

6000<4000.3FFFM <Return>

5. Insert your formatted disk into Drive 1 and boot it from the monitor by entering:

6<Ctrl>-P <Return>

("<Ctrl>-P" means pressing the <Ctrl> key and the upper-case "P" key simultaneously)

When you get the Basic prompt, enter:

BSAVE <name>,\$A\$6000,L\$2000 <Return>

That's it — you now have a hi-res binary file containing the screen as it appeared at the moment of interruption. Check it out if you like by entering:

HGR2 <Return>

BLOAD <name>,\$A\$4000 <Return>

Double Hi-Res Dumps

In all their excitement at discovering the Double Hi-Res (DHi-Res) screen, Apple forgot to give us a standard method of storing it on disk. Below is a method for saving and loading DHi-Res files using Dark Star's ScreenSnapper printing utility. Since there is no effective standard, however, we don't guarantee that you'll be able to use ScreenSnapper files in conjunction with other DHi-Res programs:

1. Load the Copykit into your Snapshot card and use the menu "Boot" option to get your subject program up-and-running. Use the Snapshot trigger to interrupt it when the required screen is displayed.
2. Place your ScreenSnapper disk in Drive 1, select the "Exit to Monitor" option from the Copykit menu, and enter:

6 <Ctrl>-P <Return>

3. When ScreenSnapper loads, use <Ctrl>-B or &<Return> in the usual way to get the menu on-screen. Go to the Default Menu and set the screen defaults to "Graphics" and "80-columns."
4. Place a formatted DOS 3.3 diskette in the ScreenSnapper default drive. (Remember that a Double High-Resolution file will take up twice as much space as a normal Hi-Res dump — ie, 60 sectors as opposed to 30 — so ensure you have enough room on your disk.) Now Select the Disk Sub-menu and use the "Save" option to create your DHi-Res file.

NB - You will need to have ScreenSnapper in memory to load files made in this way. Be sure that screen defaults are set to "Graphics" and "80-Columns" before using the "Load" option from the Disk Sub-menu.

Using ScreenSnapper for "Iron-on Transfer" printing

One increasingly popular use of dot-matrix printers is to load them with special ribbons containing thermal-transferable ink and iron-on the resulting print-outs to book-covers, T-Shirts, and other materials which are impossible to print on directly.

Both Jaromir Smejck and Tim Resche of San Francisco, California have pointed out a major drawback to the use of such ribbons. That is, if you want to transfer graphics containing text messages to articles using the iron-on method, your text will end up back-to-front. The simplest way to deal with this problem is to use ScreenSnapper to load in the desired graphic and select the mirror-image option from ScreenSnapper's Utilities sub-menu before printing.

Using the Shuttle with expanded programs

Now that memory expansion cards are more popular with Apple users, we're beginning to see more programs which know how to find and make use of all that extra RAM. In particular, the extra 64K of memory on the Apple IIe's extended 80-column Card is automatically recognized by applications like Visicalc IIe, AppleWorks, Flashcalc, AppleWriter IIe, Apple Logo, and all ProDOS-based programs.

When you start up a program from the Shuttle menu, you are asked if that program will use 128K (that is, if it will use both the main 64K and the 64K on the Extended 80-column Card). If you say it will, the Shuttle is careful to make room in the Extended 80-column Card for the program.

If you tell the Shuttle that a particular program will use 64K, but in fact it uses 128K, you will have trouble. The program will overflow the main 64K and interfere with whatever program the Shuttle is storing in the auxiliary 64K. One or both programs will behave oddly they may "freeze", or random characters may appear on the screen. Most often, the program which you booted second will mess up the program you booted first.

If you find that this sort of thing is happening in some circumstances, try allocating 128K to each of your programs — or at least to the one whose size you are uncertain of. If that solves the problem, then you know that one or more of your programs uses 128K.

Rules of thumb to follow are:

- Any ProDOS-based program uses 128K
- Any program that uses double hi-res graphics is 128K
- Most Mouse programs are 128K
- Any program with "works" in its name probably uses 128K
- Visicalc IIe, Applewriter IIe, Apple Logo, Flashcalc, AppleWorks and Pascal 1.3 all use 128K

- If a program can run on a 64K Apple, it may still use 128K on an Apple with an extended 80-column card

Having discovered that some of your programs are larger than you thought, you may find that you don't have enough memory in your Apple to "shuttle" all the applications you want. Since memory is now so cheap, the best solution is to add another RAM card or, if possible, expand the one you already own. However, if you're short of cash as well as memory and you're quite happy to work with 128K programs in their 64K form, there's a software solution: You can use the Snapshot Copykit to fool programs into thinking there's no extended 80-column card present. To do so, you need to beg, borrow or steal a standard (ie, non-extended) 80-column card and make a 64K Copykit backup of each of your expandable programs.

When you load these backups into your 128K Apple (using the Shuttle's "Load" option), they will be blissfully unaware of the extra available memory and continue to use 64K only. (See below for information on using the Copykit to curb the appetite of other memory-hungry programs.)

Preboot Expansion Software and Invasive Programs

Some programs can make use of other memory cards if they are specifically configured (ie, modified) to use them. For example, there are Visicalc "preboot" programs which you can use to modify Visicalc to use a Ramrod/Saturn-type memory card. You have to specify which slot the card is in. This poses no problem for the Shuttle you just have to make sure that when you configure the Shuttle you do not tell it to use the memory card that Visicalc is using. When you want to switch out of Visicalc and run some other program, the Shuttle will move only that part of Visicalc that sits in main memory. The expanded part will remain snug in its card, untouched until you return control to Visicalc again.

Likewise, if you use an AppleWorks expansion preboot, you can configure the Shuttle to ignore Ramworks (or whatever) and use only your other RAM cards for storing Workspaces. (With some versions of AppleWorks expansion software, you may be able to segment Ramworks, Multiram, etc. for both Shuttle and expanded Desktop use. Consult Dark Star's friendly techies for advice.)

A small minority of invasive programs can cause problems for the Shuttle. These RAM-gluttons search the slots of your Apple for memory cards other than the Extended 80-column Card, and then invade that extra memory and use it for their own purposes. An invasive program may locate memory used by the Shuttle to store programs and wipe them out. (You can sometimes identify one of these software equivalents to Atilla the

Hun by looking at the lights — if any — on your memory card. If they flash when the program is in use, it has invaded the card. PinPoint, Locksmith 5.0 and Flashcalc are invasive programs.)

In order to explain how to nip this problem in the bud, we will look at one popular invasive program Flashcalc. Flashcalc, when it starts running, searches all your Apple's slots and makes use of any memory cards it recognizes. It knows how to use the Saturn, Neptune, Ramrod, Glanmire, Ramworks, and other cards as well. It does this automatically, without asking or notifying you. This of course can wipe out any other programs stored in a RAM card by the Shuttle.

Unfortunately, there is no way to physically block Flashcalc from invading your extra RAM. We need to use the Copykit in a similar way to that described above to fool Flashcalc into thinking that the additional memory isn't there. That way, it will restrict itself to the normal 64K or 128K. The Copykit will backup Flashcalc by letting it begin running, freezing it in memory, then copying the frozen image out to a disk. The frozen image can later be reloaded into memory and set running again. It will resume running from the point at which it was initially frozen.

If Flashcalc is frozen after it searches the Apple for memory cards, then later, when we unfreeze it, Flashcalc will carry on as though it had never been interrupted. It will still remember the arrangement of memory cards that it found when it searched for them. If we have added more memory cards in the meantime, they will be ignored. This gives us a strategy for fooling Flashcalc. Here is the method:

1. Remove all memory cards except the Extended 80-column Card from the Apple. (If you have a super-extended 80-column card like Ramworks, remove all but the first 64K bank of RAM chips.) Use the Copykit to make a 128K backup of Flashcalc, following the instructions in the Copykit manual.
2. Put the memory cards back in the Apple. Configure the Shuttle (if you haven't already done so) to use those cards. Start up the Shuttle.
3. Use the Shuttle's "Load" option to load the Flashcalc backup into a 128K workspace. Use the "Resume" option to resume running it.
4. Now you can use Flashcalc like any other program running under the Shuttle. Flashcalc will not bother the Shuttle's memory cards, as it thinks it is running on a 128K Apple.